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Impact of COVID 19 on international trade and China's trade

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Abstract. As COVID-19 emerged from China and spread around the world like a pandemic, it was not just a health disease threat perhaps it could affect the world economically, politically, socially and educationally so, this research is conducted to find the impact of COVID-19 on international trade and China's trade. To determine the effects of COVID-19 on global trade, a comprehensive analysis was conducted on forty-two countries using computable general equilibrium (CGE) model. These components comprise things such as industries, governments, importers and exporters, investors, and households. The results were obtained by using 2018 data from the Asian Development Bank and the International Monetary Fund. The impact of Covid-19 on GDP has been predicted under two scenarios. These are the short and long containment scenarios. Under the short containment scenario, global trade will be cut by about 905 billion US Dollars. Global trade will be cut by 2,095 billion US Dollars under the long containment scenario. From the simulation, growth in GDP will fall by 5.4 percent under the short containment scenario growth in GDP will fall by 3.7 percent in Asia and by 2.8 percent in the world, Asia is expected to contribute the most to the general decline in global output by a figure of 48 percent. Covid-19 will impact wage income most in the EU, UK, and the US. On a global scale, labor income will fall by 535 billion US Dollars under the short containment scenario. Labor income will fall by 1053 billion US Dollars under the long containment scenario. China is the core of export and import in Asia and COVID-19 could affect the Asia negatively so it could be concluded that COVID-19 could affect the China's trade indirectly during the COVID-19.

Keywords. COVID-19, International trade, China's trade.

JEL. F17, F14, F02.

1. Introduction

Since December of 2019, the first sign of COVID 19 appeared in Wuhan, China and converted to a pandemic for all the world. Consequently, this pandemic picked in USA, Italy, Spain, Germany, China, France. Iran, UK, Switzerland, and Turkey and currently more than 94% of the victims of this pandemic is out of China (Duddu, 2020). According World Health Organization (WHO) report in (April 2020) the global confirmed case was 2,471,136 and total death was 169,006 in which recently the affected case is increasing more than 10,000,000 and death case is crossing the limit of 600,000. COVID 19 is not just a threat for health or

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for a single country perhaps it could affect all the world socially, politically, psychologically and economically in which this outbreak induces a de-globalization by forcing countries to lock-down borders and all the educational institutions, tourism, investment, export and import have received a shock. Economical devastation is continuing till now and it will be hurting the global economy through disruption in trade and production (Baldwin & Mauro, 2020). Even though the warning for having a crucial situation is risen as the International Monetary Funds (IMF) Managing Director Georgieva (2020) says that COVID 19 will be turning the world to 2007 and 2008's financial crises. According the General Director of World Trade Organization Azevêdo (2020) says the volume of the global trade falling by 13 % and if the pandemic is not brought under the control and the governments couldn't found a solution so the decline could be 32% or even more, But World Trade Organization has predicted that goods and commodities would shrink more steeply in 2020 than one decade ago in global financial crisis and it is expected to have decline in COVID 19 if countries work together. Already the world's trade relationship is faced crisis by COVID-19 and the current political clashes among China and USA, two enormous economy of the world will be hurting the international trade significantly.

As all the world is affected by this pandemic and China is also faced a huge level of shocks being as the origin of this pandemic so, this paper is launched to find out the impact of COVID 19 globally on international trade and specially on china's trade that at which level the trade is affected. Although it would be very early to judge about the impact of COVID 19 on international trade because virus is still active and disturbing the world but still it is affected will be analyzed till now. The significances of this research are to discover the shocks which is given to the trades and a measured policy might take toward overcoming this phenomenon. Although there is some research related to the impact of COVID 19 on China's trade and global trade exist but recently no research is done regarding this gap.

2. Literature review

Matoo *et. al.*, (2020) launched a research to consider the potential impact of COVID 19 on GDP and trade. For gaining a significant result a standard global computable general equilibrium model (CGEM) is used in which the data is taken before COVID 19 and after COVID 19 as monthly basis. As a result of global pandemic, it seems that gross domestic product fall by 2 % below the benchmark for the world, 1.8 % for the industrial countries and 2.5 % for the developing countries. it is added that a global crisis requires a global response and global collaboration is not just required for health perhaps it is a necessary order on trade, macroeconomic policies, and finance.

Gruszczynski (2020) considered a research to find out the relationship about the COVID 19 pandemic and international trade. The comparative

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methodology is used, and the data is taken before COVID 19 and after COVID 19 for short run and long run. The conclusion which is taken out claims that COVID 19 is a threat and disaster which hurt all the educational system, tourism, health, financial system and economy of all countries but for long term there will be a recession of COVID 19 and everything turn to normal but it may take more or less time which depend upon coming situations.

Barua (2020) has done a research related COVID 19 pandemic and world trade in which the data is take before and after the COVID 19 as monthly basis and the standard trade analysis framework with some economic theories are used to generate a result. The conclusion claims that pandemic will be introducing a new pattern of trade and affect the trade relationship which make some economies winner and some economies loser which there is no doubt that regulation of trading will be affected.

Lee (2020) tried to evaluate the impact of Wuhan COVID 19 on four strategic sector first tourism, air transportation, international trade, and electricity consumption of the Chines economy. The new model of economic crisis from massive contagious infection diseases simulator (ECMCID-Simulator) is used. According to ECMCID-Simulator results, finally each sectors contribution to GDP growth rate in 2020-2021 is equal to ($\Delta O1 = +0.3\%$), ($\Delta O2 = +2.5\%$), ($\Delta O3 = +0.2\%$), and ($\Delta O4 = +1.5\%$). We can conclude that air transportation sectors, international trade, and tourism are adversely affected. On the other hand, electricity consumption experiences a surge, due to increased demand associated with medical services and quarantines.

Sumner (2020) estimated the impact of COVID 19 on global poverty in short run. The estimates are based on three scenarios: low, medal and high global contraction of 5, 10 and 20 percent. The impact of each scenarios on poverty headcount is calculated by using international poverty line, US\$1.90, US\$3,20, and US\$5.50 per day. The conclusion is against the united nation sustainable development goal (UNSDG) which claimed that poverty will be close to ending in 2030 because after this pandemic the poverty level again increased as 1990. Under the extreme scenario of a 20 per cent of consumption and income contraction, 420–580 million could increase under the poverty line which is like a challenge to UNSDG's expectations.

3. Methodology

To determine the effects of COVID-19 on global trade, a comprehensive analysis was conducted on forty-two countries using computable general equilibrium (CGE) model. Using this model is advantageous because it gives an output of the economy comprised of independent components. These components comprise things such as industries, governments, importers and exporters, investors, and households. Besides, the CGE model captures the economic interactions between world countries as well as in-depth industry links. With the CGE model, markets are represented as

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perfectly competitive, trading goods as imperfectly substitutable, and industry technologies as linearly homogeneous. Bilateral trade relations amongst different countries in the world is used to capture flow-on effects to other countries and regions in the model. The following results were obtained by using 2018 data from the Asian Development Bank and the International Monetary Fund. As it takes less than one year which COVID-19 rises, so no annual data are available to be taken and the monthly data are used to run the model. To determine the effect of COVID-19 on world trade and China's trade, the wage rate, trade and economy of China and world are considered before and after COVID-19.

4. Empirical results

Covid-19 is expected to affect both local and global trade in various proportions. The global pandemic has arguably affected various aspects of the trade such as the GDP of countries, wage incomes, and fiscal policy. Its impact on the aspects impacts trade because of the accompanying changes in supply and demand. It has had a negative impact on exports in a variety of sectors and destinations. Countries like the US and China have already registered a decline in the export of their major goods. For instance, the US will lose about 85 billion US Dollars of export revenue due to Covid-19. Tourism and services which need face-to-face interactions are the most affected exports. China has registered a decline majorly on manufacturing goods in addition to its exports squarely intended for EAP countries, Europe, and the US (Maliszewska, Mattoo, & Van Der Mensbrugghe, 2020). A decline in Chinese trade consequently leads to a decline in the global trade because China alone covers 60 percent of supply and demand in the world.

The impact of Covid-19 on GDP has been predicted under two scenarios. These are the short and long containment scenarios. Under the short containment scenario, global trade will be cut by about 905 billion US Dollars. This represents about one percent of GDP. Global trade will be cut by 2,095 billion US Dollars under the long containment scenario. The table below represents the impact of the Covid-19 on GDP, which is a deviation from a Covid-19 free world.

Table 1. Covid-19 and GDP

Containment	GDP (Million USD)		GDP (percent)	
	Short	Long	Short	Long
Global	-905408	-2094937	-1.0	-2.3
Asia	-198994	-472279	-0.6	-1.5
Central Asia	-1724	-1221	-0.3	-0.2
East Asia	-130667	-291177	-1.6	-3.5
PRC	-10528	-109399	-0.1	-0.8
Southeast Asia	-38245	-57361	-1.1	-1.6
South Asia	-2081	-17491	-0.1	-0.5
Oceania	-15490	-32571	-0.8	-1.6
Pacific	-259	-484	-0.4	-0.7
US	-109625	-209590	-0.5	-1.0
EU+UK	-471171	-1135655	-2.1	-5.1

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From the simulation, growth in GDP will fall by 5.4 percent under the short containment scenario. The comparison was made with a world not having Covid-19. Specifically, growth in GDP will fall by 3.7 percent in Asia and by 2.8 percent in the world. Asia is expected to contribute the most to the general decline in global output by a figure of 48 percent. The table below represents the impact of Covid-19 on GDP, which is a deviation from a Covid-19 free world.

Table 2. *Covid-19 and GDP*

Containment	GDP (Million USD)		GDP (percent)	
	Short	Long	Short	Long
Global	-2524687	-4935013	-2.7	-5.3
Asia	-1205132	-1887948	-3.6	-5.7
Central Asia	-11901	-24696	-2.1	-4.0
East Asia	-178618	-405842	-2.1	-4.8
PRC	-782385	-908404	-5.3	-6.2
Southeast Asia	-99892	-234073	-2.7	-6.5
South Asia	-81183	-195197	-2.1	-5.3
Oceania	-49993	-117718	-2.4	-5.8
Pacific	-1127	-2012	-1.5	-2.7
US	-422590	-980154	-2.1	-4.6
EU+UK	-552865	-1225614	-2.4	-5.4

The long containment scenario is where the outbreak is projected to last a period between six and twelve months. Under this period, the PRC's output is predicted to reduce by 6.3 percent compared to a Covid-19 free world. the long containment scenario will see the growth in GDP fall by 5.8 percent in Asia and 5.4 percent in the rest of the world. Asia is expected to contribute the most to the general decline in global output by a figure of 38 percent. Other than the world and Asia in general, other regions of the world will suffer a fall in GDP as shown in the table above. These regions registered greater impacts because of they have larger trade and shares in tourism relative to GDP.

Covid-19 is expected to negatively affect wage income for various people across the globe. This negative impact will in turn negatively affect local and global trade because the purchasing power of goods and services reduces as income is reduced. According to Summer, Hoy, & Ortiz-Juarez (2020), even the slightest compression of per capita income due to Covid-19 could potentially result in income-based poverty. As a result, the world could easily lose its decade worth of progress in reducing poverty. Consequently, there would be an increase in the number of people living under poverty in the world as compared to the figures in 2018. All regions of the world could suffer from wage contractions, although the degree of its impacts will depend on their level of development.

Covid-19 will impact wage income most in the EU, UK, and the US. On a global scale, labor income will fall by 535 billion US Dollars under the short containment scenario. The figure will be 255 billion US dollars in Asia, accounting for about 38 percent of the total global fall in wage income. Labor income will fall by 1053 billion US Dollars under the long

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containment scenario. The table below shows how Covid-19 will affect wage income in other regions of the world.

Table 3. *Covid-19 and wage income*

Containment	GDP (Million USD)		GDP (percent)	
	Short	Long	Short	Long
Global	-535314	-1053262	-2.9	-5.8
Asia	-254763	-395138	-4.0	-6.2
Central Asia	-2002	-4442	-2.2	-5.0
East Asia	-33736	-78325	-2.2	-5.2
PRC	-177715	-209488	-5.5	-6.5
Southeast Asia	-16899	-41276	-2.9	-7.2
South Asia	-16090	-40540	-2.5	-6.2
Oceania	-8197	-20836	-2.4	-6.1
Pacific	-124	-232	-1.6	-3.0
US	-102755	-253481	-2.1	-5.2
EU+UK	-87797	-194711	-2.6	-5.8

Various governments from all over the globe have implemented a plethora of aid programs to their citizens to curb the adverse effects of COVID-19 on the economy. These interventions include actions such as tax cuts, tax reliefs, support to businesses, cash handouts, purchase of treasury bonds, and liquidity injections utilizing reverse purchase. These interventions have the capacity of promoting and facilitating both local and global trade. They promise to keep the flow of goods and services uninterrupted thereby supporting trade. From the results of the CGE model, these fiscal interventions have the potential of raising the GDP by 0.6 percent to 1.7 percent under both short and long containment scenarios. The interventions could also potentially contribute to the growth of about 0.2 percent to 0.7 percent in the PRC. After evaluating all the above simulation, it is found the impact of COVID-19 on China's trade and international trade, economy and wages rate are negative, it requires a lot of comprehensive to compensate the causalities and disasters.

5. Conclusion

A decline in Chinese trade consequently leads to a decline in the global trade because China alone covers 60 percent of supply and demand in the world. The impact of Covid-19 on GDP has been predicted under two scenarios. These are the short and long containment scenarios. Under the short containment scenario, global trade will be cut by about 905 billion US Dollars. Global trade will be cut by 2,095 billion US Dollars under the long containment scenario. From the simulation, growth in GDP will fall by 5.4 percent under the short containment scenario. The comparison was made with a world not having Covid-19. Specifically, growth in GDP will fall by 3.7 percent in Asia and by 2.8 percent in the world, Asia is expected to contribute the most to the general decline in global output by a figure of 48 percent. Covid-19 will impact wage income most in the EU, UK, and the US. On a global scale, labor income will fall by 535 billion US Dollars under

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the short containment scenario. Labor income will fall by 1053 billion US Dollars under the long containment scenario. China is the core of export and import in Asia and COVID-19 could affect the Asia negatively so it could be concluded that COVID-19 could affect the China's trade indirectly during the COVID-19.

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